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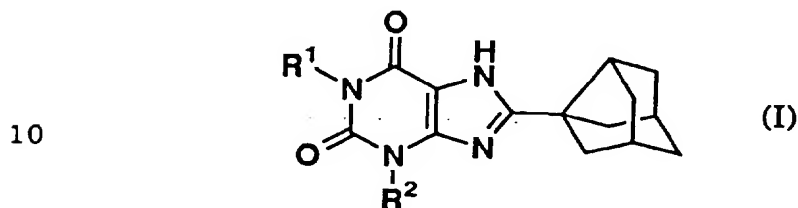
SUPPLEMENTARY
EUROPEAN SEARCH REPORT

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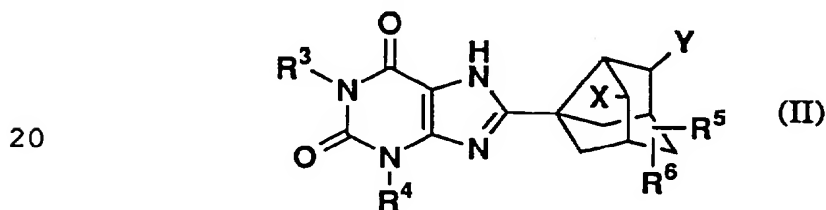
Application Number
EP 95 91 8190

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP-A-0 501 379 (KYOWA HAKKO KOGYO CO., LTD) * page 1 * & JP-A-04 346 986 (KYOWA HAKKO KOGYO CO., LTD) ---	1	C07D473/04 C12P17/18 C07D473/06 //A61K31/52
A	EP-A-0 541 120 (KYOWA HAKKO KOGYO CO., LTD) * page 1 - page 3 * ---	1	
A	EP-A-0 560 354 (KYOWA HAKKO KOGYO CO., LTD) * page 1 - page 2 * ---	1	
A	CHEMICAL ABSTRACTS, vol. 118, no. 25, 21 June 1993 Columbus, Ohio, US; abstract no. 254632t, page 852; column r; XP002010672 * abstract * & JP-A-04 346 986 (KYOWA HAKKO KOGYO CO., LTD) ---	1	
P, A	EP-A-0 619 316 (KYOWA HAKKO KOGYO CO., LTD) * page 1 - page 2 * -----	1	
The supplementary search report has been drawn up for the claims attached hereto.			
Place of search THE HAGUE		Date of completion of the search 10 October 1996	Examiner Luyten, H
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			

1. A process for producing a xanthine derivative represented by formula (II), comprising converting a xanthine derivative represented by formula (I) (hereinafter, referred to as Compound (I)):

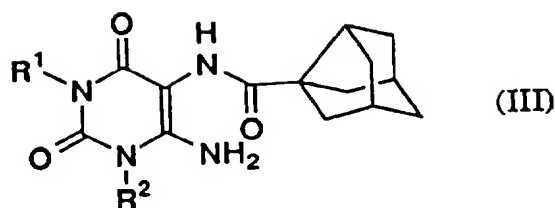


- (wherein R¹ and R² independently represent hydrogen, or hydroxy-substituted, oxo-substituted, or unsubstituted lower alkyl) into a xanthine derivative represented by formula (II) (hereinafter, referred to as Compound (II)):

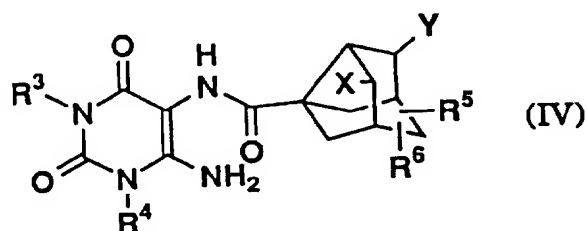


- (wherein R³ and R⁴ independently represent hydrogen, or hydroxy-substituted, oxo-substituted, or unsubstituted lower alkyl; R⁵ and R⁶ independently represent hydrogen, hydroxy, or oxo; with the proviso that when R⁵ and R⁶ are both hydrogen, at least one of R³ and R⁴ is hydroxy-substituted or oxo-substituted lower alkyl; and X and Y both represent hydrogen or are combined with each other to form a single bond) in the presence of an enzyme source for catalyzing hydroxylation or carbonylation of Compound (I) into Compound (II), and collecting the produced Compound (II).

2. A process for producing Compound (II), comprising converting a uracil derivative represented by formula (III) (hereinafter, referred to as Compound (III)):



(wherein R¹ and R² have the same meaning as defined above) into a uracil derivative represented by formula (IV) [hereinafter, referred to as Compound (IV)]:



(wherein R³, R⁴, R⁵, R⁶, X, and Y have the same meaning as defined above) in the presence of an enzyme source for catalyzing hydroxylation or carbonylation of Compound (III) into Compound (IV), and closing the ring of Compound (IV) by dehydration.

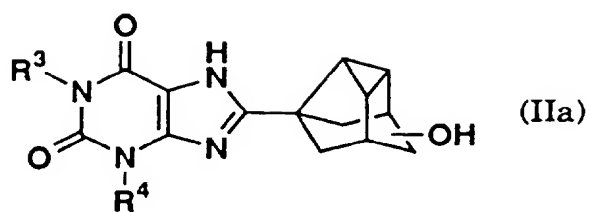
3. A production method according to any of Claims 1 and 2, wherein R¹ and R² independently represent hydroxy-substituted, oxo-substituted, or unsubstituted lower alkyl, and R³ and R⁴ independently represent hydroxy-substituted, oxo-substituted, or unsubstituted lower alkyl.

4. A production method according to any of Claims 1 to 3, wherein said enzyme source is derived from microorganisms.

5. A production method according to Claim 4, wherein said microorganisms belong to the genus Absidia, Bacillus, or Beauveria.

6. A xanthine derivative represented by formula (IIa):

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(wherein R³ and R⁴ have the same meaning as defined above),
or a pharmaceutically acceptable salt thereof.